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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/835,400	04/17/2001	George Hamilton Harvey	PMC-002	5160
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Carl Benson GOODWIN PROCTER LLP 901 New York Avenue, NW Washington, DC 20001				
			EXAMINER SPOONER, LAMONT M	
			ART UNIT	PAPER NUMBER
			2626	
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			10/30/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

09/835,400

**Applicant(s)**

HARVEY ET AL.

**Examiner**

Lamont M. Spooner

**Art Unit**

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-17 and 29-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-17 and 29-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Introduction***

1. This office action is in response to applicant's amendment filed 8/29/07. Claims 14-17, and 29-46 are currently pending and have been examined.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 14-17, 29-33, 35-39, 41-44, and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Ausborn (US 5,056,021)

4. As per claim 14, Ausborn teaches a machine readable medium storing a data structure, in which concepts are represented comprising:

a machine readable medium on which is stored a data structure including a plurality of fields, each of the fields filled with a readable value (C.6 lines 35-41-his array as the fields);

a plurality of roots (Fig. 1, location of matter as the root), each root including a fixed number of the plurality of fields (ibid-his array, Fig 3 item 304), each root including a most significant field filled with a readable value designating a general abstract concept and a field of lesser significance filled with a readable value designating a narrower concept within the general abstract concept designated within the most significant field (Fig. 4 item 404-his levels of abstraction), whereby each root designates a concept indicated by the value of each field included in the root (ibid-Fig 1 are the levels of abstraction); and

a word including the plurality of roots, each concept designated by each root of the plurality of roots designating a different characteristic of the word (C.6 lines 36-41-his word, and resulting concepts/categories of meaning from each of the plurality of roots).

As per claim 15, Ausborn teaches the method of claim 14, wherein the plurality of roots are selected from a predetermined set of roots (C.15-C.30-his appendix containing the predetermined set of roots).

As per claim 16, Ausborn teaches the method of claim 14, wherein the predetermined set of roots is organized based upon a definitional tree-type structure (Fig. 1-as his definitional tree structure) with the readable

value of the most significant field designating a concept at a highest level of the tree type structure and the readable value of lesser significance designating a concept at a lower level of the tree-type structure (Fig. 4 item 402, 404-his levels of abstraction in the array from, as indicating the most significant fields, each array for "x" indicating a lesser significance and lower level of his tree-type structure, see also Fig. 3 item 304).

As per claims 17, 35 and 41, Ausborn teaches the method of claim 14, wherein the word includes a further root designating how the word is used (ibid-C.9.lines 4-45-teach the levels of abstraction as indicating the how the word is used, the how indicated by category).

As per claim 29, Ausborn teaches a method of representing data comprising:

representing each root of a set of roots with a value based on a definitional tree-type structure (see claim 14), each root including a plurality of common fields representing levels of the tree-type structure (see claim 14), each specific field included in a specific root having a value corresponding to the meaning of the specific root at a level of the tree type structure represented by the specific field (see claim 14);

representing a data concept by grouping a plurality of roots selected from the set of roots to form a word (see claim 14, wherein the combination of concept roots form the word given in the array, see specifically, C.6 lines 36-41), each root of the plurality of roots corresponding to a characteristic of the data concept represented by the word (ibid); and

storing the word (ibid-his stored array, with word).

As per claims 30 and 37, Ausborn teaches the method of claim 29, wherein each word includes a number of bits equal to a number of bits contained in a process register of a computer for processing the word, each field of the plurality of common fields associated with at least one bit (inherent to machine recognition of the words).

As per claim 31, Ausborn teaches the method of claim 29, wherein a value of a field at each level of the tree-type structure designates a meaning of each value of a higher level of the tree type structure (see claim 29, array/level discussion).

As per claims 32 and 38, Ausborn teaches the method of claim 29, wherein certain roots are conventionalized based on values assigned to more basic roots (see claim 29-root level and structure), conventionalized

roots being assigned values based on a predetermined convention (see claim 29, root level and structure wrt array values).

As per claims 33 and 39, Ausborn teaches the method of claim 29, wherein a characteristic designated by certain roots is defined based on values to more basic roots (see claim 29, inherent to hierarchical level and structured array).

As per claim 36, Ausborn teaches a method of representing concepts comprising the steps of:

representing each particular concept with a plurality of roots (see claim 14-his roots and hierarchy of concept representation, Fig. 1), each root of each plurality of roots representing a characteristic of a particular concept (ibid, levels represent characteristics); representing each root with a plurality of fields (see claim 1-his array structure), each field of each plurality of fields designating meaning of the represented root at a level of significance in a definitional tree-type structure (ibid), a top level of significance in the definitional tree-type structure dividing knowledge into a plurality of abstract subsets of ideas (see claim 14, Fig. 1-his tree structure), each lower level of significance in the definitional tree-type structure dividing each higher subset of ideas into a plurality of subsets of

ideas (ibid), wherein a most significant field of each plurality of fields represents a subset of the plurality of abstract subsets of the top level of the definitional tree (see claim 14-array discussion), and a least significant field of each plurality of fields represents a subset of ideas at a lowest level of the definitional tree-type structure (see claim 14-array discussion).

As per claim 42, Ausborn teaches a method for storing data comprising: forming a tree-type taxonomy for word roots (see claim 29-Fig. 1), the upper level of the taxonomy divided into a plurality of classes (see Fig. 1-each level comprising classes), each class divided into a plurality of subclasses at a lower level of the taxonomy (see Fig. 1), each level of the taxonomy represented by a field in each word root (see claim 29-array discussion); combining a plurality of the word roots to form a word (see claim 29), each word root forming the word representing a characteristic of the word (see claim 29); and storing the word (see claim 29).

As per claim 43, Ausborn teaches the method of claim 42 wherein taxonomy for word roots includes conventions whereby the class and subclasses represented by fields of a word root are altered based on the fields of other word roots combined with the word root to form the word (see claims 29-combining discussion and claim 32, wherein the combined



array for word determination by root is altered based on levels of roots on the higher levels).

As per claim 44, Ausborn teaches the method of claim 42, wherein the characteristic represented by at least one root combined to form the word is designated by reference to another root combined to form the word (see claim 29-combining root discussion, wherein the word roots are referenced through the hierarchy).

As per claim 46, Ausborn teaches the method of claim 42, wherein the step of combining includes combining a further root with the plurality of word roots, the further root representing how the word is used (see claim 29-combining root discussion, his final category root in the array as the indicator).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 34, 40 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ausborn in view of Rosenbaum et al. (Rosenbaum, US 4,384,329).

As per claims 34 and 40, Ausborn teaches the method of claim 29, but lacks teaching wherein the word includes a negation bit associated with a particular root, a value assigned to the negation bit designating that the meaning of the particular root is opposite to the meaning assigned to that value in the tree-type structure.

However, Rosenbaum teaches a word including a negation bit associated with a particular root, a value assigned to the negation bit designating that the meaning of the particular root is opposite to the meaning assigned to that value (C.2 lines 44-47-his binary antonymic relationship of the word as the value, associated with the word). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify Ausborn's tree-type structure with a root indicating opposite meaning in value, providing the benefit of having a word number indicating antonymic meaning reducing storage space (C.2 lines 1-14).

As per claim 45, Ausborn teaches the method of claim 42, but lacks wherein the step of combining includes combining a series of negation bits with the word roots to form the word, the negation bits indicating whether each root is interpreted in the negative.

However, Rosenbaum teaches combining a series of negation bits ...negation bits indicating ...in the negative (C.2 lines 44-47-his binary antonymic relationship of the word as the value, associated with the word, Fig. 3 his bit series). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify Ausborn's tree-type structure with a root indicating opposite meaning in value, providing the benefit of having a word number indicating antonymic meaning reducing storage space (C.2 lines 1-14).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- Kaplan (US 6,233,580) teaches word/number mapping.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M. Spooner whose

telephone number is 571/272-7613. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571/272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
PATRICK N. EDOUARD  
SUPERVISORY PATENT EXAMINER

lms  
10/13/07